

Section Paediatrics

Original Article

Comparative Evaluation of Respiratory Infections among Rural and Urban Child Patients

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ABSTRACT

Background: Acute respiratory infections are infections of any portion of respiratory tract or any linked structures like pleural cavity, para nasal sinuses and middle ear. It comprises of a new means occurring in any subject who has been symptom free for at least 48 hours and the infections are less than 30 days duration except for that of the middle ear where the duration is less than 14 days. The aim of the present study was to determine and compare the incidence of respiratory tract infections amongst children of rural and urban areas.
Methods: The present prospective cross-sectional study was conducted in the Department of pediatrics for a period of 4 months. The questionnaire had information regarding the lifestyle and habits of parents. The level of maternal education was taken into consideration. Modified prasad's classification was used to socially classify the subjects. Chi square test and student t test was used to perform the statistical analysis. Probability value of less than 0.05 was considered as significant.
Results: The present study 320 subjects out of which there were 73 subjects who had acute respiratory infection. There were 47% (n=16) males and 53% (n=18) females between 0-1 years of age. Acute respiratory infection was seen amongst 27 urban children and 46 rural children. There was significant difference between the two. Out of the children living in urban suburbs, there were 7.4% who belonged to social class I, 11.1% belonging to class II, 18.5% belonging to class II, 29.6% to Class IV and 33.3% to class V. **Conclusion:** From the above study we can conclude that ARI is more common amongst children residing in rural areas.

Key words: Children, incidence, infections, respiratory

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INTRODUCTION

Respiratory tract infections are a chief cause of morbidity and mortality amongst the developing and developed nations. Acute respiratory infections are infections of any portion of respiratory tract or any linked structures like pleural cavity, para nasal sinuses and middle ear. It comprises of a new means occurring in any subject who has been symptom free for at least 48 hours and the infections are less than 30 days duration except for that of the middle ear where the duration is less than 14 days.^[1] The part of deaths due to acute respiratory tract infection in the community is copious and various children die at home. In India in the year 2008, around 27.4 million cases of acute respiratory tract infection were described with an incidence rate of 2394 cases per lakh

population.^[2] In rural areas there is lack of health services, lack of knowledge, and other factors like overcrowding, problems in immune system, misuse of antibiotics, lack of money, absence of appropriate ventilation, indoor pollution are responsible for increased incidence of ARTI. There are various social and environmental issues associated with morbidity and mortality from acute respiratory tract infection in childhood. It includes presence of comorbidities like HIV, malnutrition, measles, environmental factors like passive smoking, poor living conditions, poverty and poor access to preventive services. The aim of the present study was to

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determine and compare the incidence of respiratory tract infections amongst children of rural and urban areas.

METHODS

The present prospective cross-sectional study was conducted in the Department of Pediatrics, Pacific Institute of Medical Sciences, Udaipur, Rajasthan, for a period of 4 months. The study enrolled subjects reporting to the department with acute respiratory tract infections. Ethical committee clearance was obtained from the institutional ethical board and a written consent was obtained from guardians or parents of the subjects. A pre-tested proforma was used for the evaluation of the subjects. The questionnaire had information regarding the lifestyle and habits of parents. The level of maternal education was taken into consideration. Modified Prasad's classification was used to socially classify the subjects. The subjects were divided into rural or urban depending on the area of residence. Parents were also enquired about frequency of acute respiratory tract infection. Knowledge and awareness about acute respiratory tract infections amongst the parents was also taken into regard. All the data thus obtained was arranged in a tabulated form and analyzed using SPSS software. Chi square test and student t test was used to perform the statistical analysis. Probability value of less than 0.05 was considered as significant.

RESULTS

The present study 320 subjects out of which there were 73 subjects who had acute respiratory infection.

Table 1 illustrates the distribution of infection according to age. There were 47% (n=16) males and 53% (n=18) females between 0-1 years of age. There were 53.1% (n=17) males and 46.9% (n=15) females between 1-4 years of age. There were 57.1% (n=4) males and 42.9% (n=3) females between 4-5 years of age.

Table 2 shows the socio demographic characteristics of the study. Acute respiratory infection was seen amongst 27 urban children and 46 rural children. There was significant difference between the two. Out of the children living in urban suburbs, there were 7.4% who belonged to social class I, 11.1% belonging to class II, 18.5% belonging to class III, 29.6% to Class IV and 33.3% to class V. Out of the children living in rural suburbs, there were 2.1% who belonged to social class I, 4.3% belonging to class II, 21.7% belonging to class III, 34.7% to Class IV and 36.9% to class V. There was a significant difference in the social class as the p value was less than 0.05. There were 44.4% urban children with illiterate mothers and 52.2% rural mothers were illiterate. Primary education was achieved by 25.9% urban and 19.6% rural women. Paternal smoking was present amongst 62.9% urban subjects and 86.9% of rural subjects.

Table 1. Distribution of infections according to age

Age group (years)	Male (n/%)	Female (n/%)	Total
0-1	16 (47%)	18(53%)	34
1-4	17(53.1%)	15(46.9%)	32
4-5	4(57.1%)	3(42.9%)	7

DISCUSSION

In the present study the prevalence was 22.8% which was comparable to the studies conducted by Sikolia D N^[3] and Rahman MM.^[4]

Table 2. sociodemographic characteristics of the study

Variable	Urban	Rural	P value	
Respiratory infection present	27 (36.9)	46(63.01)	<0.05	
Social class	I	1(2.1)	<0.05	
	II	3(11.1)	2(4.3)	
	III	5(18.5)	10(21.7)	
	IV	8(29.6)	16(34.7)	
	V	9(33.3)	17(36.9)	
Maternal education	Illiterate	12(44.4)	24(52.2)	>0.05
	Primary	7(25.9)	9(19.6)	
	High school	4(14.8)	6(13.1)	
Paternal smoking	Diploma	4(14.8)	7(15.2)	
	Yes	17(62.9)	40(86.9)	>0.05
	No	10(37.1)	6(13.1)	

Studies conducted by Ram kishore Gupta^[5] also showed comparable values of prevalence. In our study, out of the children living in urban suburbs, there were 7.4% who belonged to social class I, 11.1% belonging to class II, 18.5% belonging to class III, 29.6% to Class IV and 33.3% to class V. Out of the children living in rural suburbs, there were 2.1% who belonged to social class I, 4.3% belonging to class II, 21.7% belonging to class III, 34.7% to Class IV and 36.9% to class V. There was a significant difference in the social class as the p value was less than 0.05. Studies conducted by Various studies like by Deb SK^[6], M.R. Savitha^[7] and Nilanjan Kumar Mitra^[8] also showed similar results. In our study, acute respiratory tract infection was seen in 27 urban children and 46 rural children. There was significant difference between the two. As per the study by Deb SK^[6] acute respiratory tract infection was more common amongst children of rural suburbs. Severe acute respiratory tract infection is more prevalent amongst rural areas compared to the urban areas. As per our study, there were 44.4% urban children with illiterate mothers and 52.2% rural mothers were illiterate. Primary education was achieved by 25.9% urban and 19.6% rural women. There was no significant effect on maternal education on the prevalence of acute respiratory tract infection. The results were like the studies by Nilanjan kumar Mitra.^[8] In our study, no significant effect of paternal smoking was seen amongst children. The study was similar to the studies conducted by Rahman MM^[4] and J.K Peat.^[9] Our study did not evaluate the association between the nutritional status, immunization and acute respiratory tract infection. According to a study by Pore et al.^[10] there was significant association between the nutritional status and mother's literacy rate and the incidence of acute respiratory tract infection. As per the study by Gupta et al.^[11] sanitary conditions, socioeconomic status are important determinants of the prevalence of acute respiratory tract infection. Malnourished subjects of lower socio-economic class are at increased risk of acute respiratory tract infection. As per the study by Chhabra et al.^[12] the effect of nutritional status is more on the incidence of lower respiratory tract infections compared to upper respiratory tract infection. Children residing in the well-ventilated areas have lower incidence of respiratory tract infections.

CONCLUSION

From the above study we can conclude that ARI is more common amongst children residing in rural areas. This can

be chiefly attributed due to lack of awareness, knowledge amongst the residents. The class of subjects and living conditions are also regarded as risk factors for ARI.

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